Performance of a Difficult Airway Algorithm in the Prehospital Setting

Although providers adhered to the algorithm, complication rates were high.

In a prospective observational study, researchers evaluated adherence to a difficult intubation management algorithm by a prehospital emergency medical services unit in France between 2005 and 2009. All intubations were performed by a physician (attending or senior resident) and nurse anesthetist. In cases of difficult intubation, the algorithm recommended use of a gum elastic bougie (GEB) first and an intubating laryngeal mask airway (ILMA) second. If intubation or ventilation (O_2 saturation maintained above 85%) was impossible, the algorithm recommended use of an ILMA, followed by cricothyroidotomy if the ILMA failed.

Overall, 160 of 2674 intubations (6%) were difficult. Rate of adherence to the algorithm was 98%. The algorithm was not adhered to for three patients who underwent more than two intubation attempts by direct laryngoscopy before a GEB was used. Intubation with the GEB was successful in 114 of 151 attempts (75%); all 37 patients with failed GEB-assisted intubation were adequately ventilated via an ILMA. Among nine patients who were impossible to intubate and ventilate, an ILMA was successful in eight. Cricothyroidotomy was performed in one patient with severe upper airway obstruction secondary to neoplasia. Complications related to intubation occurred in 83 patients (52%) and included esophageal intubation (36%), aspiration (14%), arterial desaturation (26%), and cardiac arrest (6%).

Comment: Adherence rates for this simple algorithm were high. However, complication rates also were high, despite well-trained prehospital staff. Addition to the algorithm of a newer airway device, such as a video laryngoscope, likely would decrease both the difficult airway rate and the complication rate without compromising simplicity.

— Emily L. Brown, MD, and Ron M. Walls, MD, FRCPC, FAAEM

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